KANSAS CITY, MISSOURI
EMERGENCY
OPERATIONS PLAN

Hazard Specific Response Plan 1
Flood Operations

September 2014

HAZARD SPECIFIC RESPONSE PLAN 1
FLOOD OPERATIONS

Primary (lead) Departments:	Emergency Management Water Services Fire Department Police Department
Secondary (support) Departments:	3-1-1 Call Center City Communications Information Technology (GIS) Parks & Recreation Public Works Water Services Other City Departments as Required
Secondary (support) External Agencies:	American Red Cross Mutual Aid KCPL

I. PURPOSE STATEMENT

The purpose of this Hazard Specific Response Plan (HSRP) is to provide guidelines to preserve life, health, safety and property through the implementation of quick and efficient operations during a flood incident. This Action Plan establishes polices to guide local emergency personnel in making decisions related to flooding, and general procedures to guide flood operations.

II. LEGAL AUTHORITIES

A. Code of Ordinances, City of Kansas City, MO, Chapter 1, Article I, Stormwater utility.

B. Memorandum of Understanding between the National Weather Service and the City of Kansas City, MO for a Cooperative Flood Warning System, dated September 20, 1999, as amended.

III. PLANNING ASSUMPTIONS

A. The city is vulnerable to river flooding and flash flooding year round. Most flooding incidents will be limited in effect, and will be handled by appropriate

City departments within the normal scope of their authority. This HSRP will be utilized for major flooding incidents.

B. Barricade operations are detailed in the **Flood Barricade Strike Team Guide**.

C. Levee issues along the Missouri, Blue and Brush Creek Rivers will be addressed in accordance with the **Water Services Department's Levee Committee Operations Guidelines**

D. All resources needed and available will be utilized in conducting flood operations. If the incident exceeds local capabilities, the City will request mutual aid from surrounding jurisdictions, the state and (through the state) the federal government.

E. Flood operations will be conducted in accordance with this plan, and will be managed in a manner that conforms to the National Incident Management System (NIMS).

IV. HAZARD ASSESSMENT

A. Riverine and Flash Flood

Threat Potential: Medium (Medium Probability, Medium Consequence)

1. Background

Located at the confluence of the Missouri and Kansas (also called Kaw) Rivers, Kansas City has experienced several major floods, resulting in both loss of life and damaged/destroyed property. Kansas City also has an earthen levee system along the Missouri River and flood control wall along the Kansas River. The failure (or over-topping) of either system during flood conditions could cause significant damage within the City.

2. Potential Flood Hazards

Riverine flooding occurs when rivers, streams, lakes, reservoirs, or drainage systems overflow due to excessive rainfall, rapid snowmelt or ice jams.[1] Riverine flooding can be either slow or fast rising, but generally occur over a period of days and are usually more damaging than the other types of floods. Flash floods are considered the most dangerous type of flooding nationwide[2] due to their potential of causing death and injury to people who are unaware of or ignore the dangerous conditions. Flash floods are generally caused by intense rainfall which occurs over a relatively short period of time. These conditions can occur well upstream from an area, resulting in a sudden and catastrophic rise in water downstream. Sheet flooding, a by-product of urbanization and development, is caused by a combination of excessive rainfall or snowmelt over saturated ground and inadequate drainage.[3]

B. Dam Failure (Flooding)

Threat Potential: Medium (Low probability, Medium consequence)

A dam is any barrier that holds back water; dams are primarily used to save, manage, and/or prevent the flow of excess water into specific regions.

[1] SEMA State Hazard Analysis, B-1
[2] FEMA Flood Fact Sheet
[3] SEMA State Hazard Analysis, B-1

1. Background

   While rare, catastrophic dam failures do occur and are known to cause significant impact on life and property.

   There are multiple dams within the City of Kansas City. Most are unregulated, private earthen dams. The Longview Lake Dam is the only local dam operated and maintained by the U.S. Army Corps of Engineers (USACE), and consequently is the only dam with a flood inundation maps. A flood inundation map is necessary to predict where water will likely flow in the event of a controlled release of water or catastrophic failure.

   The USACE also operates the Wilson, Milford and Tuttle Creek dams located west of Manhattan. These reservoirs drain into the Kansas River, which would flood the West Bottoms area of Kanas City, MO. According to the USACE, a failure of any of these dams would cause significant flooding (possibly exceeding a 500 year flood) in Kansas City within 28 hours. It is notable that these dams are located in the seismically active Nemaha Uplift zone.

   The USACE also operates several dams on the Upper Missouri River. A failure or major water release within this system could also cause serious flooding in Kansas City.[4]

2. Potential Dam Failure Hazards

   Death, injury and extraordinary property damage can occur through the hydraulic effect of fast-moving water, rapid rise of water, movement of water outside of established channels, and other effects. In addition to flooding other natural and manmade hazards can cause dam failure.

3. Dam Failure Planning Zones

   The Office of Emergency Management utilizes the USACE Longview Lake flood inundation and Flood Insurance Rate Maps (FIRM) for planning and operations. USACE has created the **Longview Lake Emergency Action Plans** that directs USACE personnel in deciding and implementing protective actions in the event of dam failure. A copy of the Plan is on file with the Office of Emergency Management.

C. Levee Failure (flooding)

   A levee is a type of dam that runs along the banks of a river or canal. Levees reinforce the banks and help prevent flooding. Levees can be natural or man-made. Hazards of levee failure are very similar to that of Dam Failures listed under item #2 above.

V. FLOOD WATCH AND WARNING LEVELS

This Plan utilizes flood watches and warning levels as defined by the National Weather Service (NWS):

[4] Regional Natural Hazards Mitigation Plan V-G-15

A. Urban and/or Small Stream Flood Advisory

Flood statements issued to provide information on elevated river/stream flows or ponding of water in urban or other areas, when such events warrant notification of the public in a product less urgent than a warning.

B. Flood Watch

Flood watches inform the public of hydrometeorological conditions which may cause flooding when the flooding is neither certain nor imminent. Flood watches may cover states, counties, rivers, portions of states, portions of counties, or portions of rivers (e.g., one or more forecast points). Flood Watches provide advance notice and up-to-date information on the possibility of flooding within 36 hours.

C. Flash Flood Warning

Flash flood warnings are issued when flooding is imminent. This product will be reserved for those short-term events which require immediate action to protect lives and property, such as dangerous small stream flooding or urban flooding, and dam or levee failures. Flash flood warnings may cover counties, portions of counties, well-known geographical areas (e.g., deserts, valleys), or river basins.

D. Flood Warning

Flood warnings are issued for any high flow, overflow, or inundation not covered by flash flood warning products. There are two general types of flood warnings - areal flood warnings and river flood warnings issued for specific forecast points. Flood warnings for forecast points usually include information on the impacts of expected flooding at locations upstream and/or downstream from covered forecast point(s) on a river or stream. Areal flood warnings are issued for areas along rivers and streams not associated with a forecast point or for counties or portions of counties (with the areas covered described in the same way as for flash flood warnings).

VI. FLOOD RESPONSIBILITIES BY DEPARTMENT OR AGENCY

Departments within the City and external agencies will undertake the following responsibilities with regard to flood operations (in alphabetical order):

A. 3-1-1 Call Center

The 3-1-1 Call Center handles calls from the public identifying flood locations.

B. American Red Cross

The American Red Cross may be requested to provide a representative in the EOC, and is responsible for the establishment and operations of shelters in support of evacuations as a result of flood operations.

C. City Communications

The City Communications office will provide a representative in the EOC to assist with emergency public information concerning flood operations.

D. City Manager

During an emergency, the City Manager (or his designee) retains all authority and responsibilities normally associated with his position; may serve as the chair

of the Unified Management Team; may approve flood operations; approves recommendations for a Proclamation of a State of Emergency.

E. Emergency Management Director (EMD)

The EMD (or designee) activates the EOC and coordinates EOC operations; implements the Local Emergency Operations Plan (LEOP); provides emergency public information; serves as chairman of the Unified Management Team (UMT). The EMD (or designee) may approve flood operations.

F. EMS Medical Director

The EMS Medical Director oversees all segments of patient care in the pre-hospital emergency medical services system. The EMS Medical Director may serve as a member of the UMT.

G. Fire Department (KCFD)

KCFD provides representatives to the EOC to coordinate fire, rescue, hazmat, emergency medical services (BLS/ALS) services, emergency treatment and transport, and public warning in the field during flood operations. The FD may serve as the Incident Commander. A KCFD representative serves as a member of the UMT.

H. Health Department (KCHD)

KCHD provides representatives to the EOC to coordinate public health services in the field during flood operations and assesses health risks associated with the flood. A KCHD representative serves as a member of the UMT.

I. Information Technology Department (ITD)

The ITD may provide a representative to the EOC to assist with GIS mapping. ITD also assists with the provision of voice and data systems to support EOC operations.

J. Mayor

The mayor (or designee) may approve flood operations and approves a Declaration of a State of Emergency.

K. Parks and Recreation

The Parks and Recreation Department will provide a representative to the EOC to serve as part of the infrastructure team. Parks provides barricade teams to assist with closing of streets and bridges that may flood or have flooded. Parks also operates the City's community centers that may be used as shelters. A Parks representative may serve as a member of the UMT.

L. Police (KCPD)

KCPD provides representatives to the EOC to coordinate law enforcement services and public warning in the field during flood operations. The KCPD may serve as the Incident Commander. A KCPD representative serves as a member of the UMT.

M. Public Works (PW)

PW will provide a representative to the EOC to serve as part of the infrastructure team. PW provides barricade teams to assist with closing of streets and bridges

that may flood or have flooded. A PW representative may serve as a member of the UMT.

N. Water Services (WSD)

WSD is responsible for providing flood warnings to City departments and coordinating infrastructure response. WSD will provide a representative to the EOC to serve as part of the infrastructure team. WSD is responsible for monitoring rivers and streams through their flood gauge system, provide barricade teams to assist with closing of streets and bridges that may flood or have flooded, coordinates sandbagging efforts, performs post incident analysis and makes recommendations to mitigate future flooding. A WSD representative may serve as a member of the UMT.

VIII. CONCEPT OF OPERATIONS

A. Potential Flooding (Urban and/or Small Stream Flood Advisory/Warning; or Flood/Flash Flood Watch)

The NWS may issue an Urban Flood Warning, a Small Stream Flood Warning/Advisory, a Flood Watch, and Flash Flood Warning or a Flood Warning indicating that flood conditions may occur.

1. Activation

a. The EMD (or designee) will coordinate with the Flood Warning System Engineer to determine the likelihood of flash flooding based on:

- NWS forecast for the amount, intensity and duration of rainfall
- Soil saturation levels
- Time of year (heavy rains in the fall make cause leaves and other debris to clog storm drains)
- Other considerations as appropriate

b. Based on this information, the EMD (or designee) will decide whether any or the following actions are required to prepare for the incident:

- Initiating a conference call among City department heads (or their designee) to coordinate preparedness activities
- Initiating cost tracking (to support a disaster claim should it be necessary)
- Activating the provisions of the **Flood Barricade Strike Team Guide**
- Activating the EOC at the appropriate level (Level I or II most probable) and coordinating emergency operations

2. Scope (Size and Duration)

The EMD (or designee) or UMT (if activated) will determine the scope of preparedness or flood operations based on the nature of the threat.

3. Public Warning and Information

At this level, no other warning information is typically disseminated other than that of the NWS through the media and NOAA Weather Radio. If, however, the City decides to issue a public warning via the news media, the following information (at a minimum) should be included in the statement:

a. The reason for the advisory/warning.

b. The geographic area(s) affected.

c. Length of advisory/warning.

d. Street and bridge closure information, if necessary.

e. Evacuation information, if necessary.

f. Specific citizen measures:

- Call 3-1-1 to report flooding.
- Clear street drains and gutters if you can do so safely.
- Never drive through flood waters. If a street is flooded, turn around.
- Stay away from flooded rivers, creeks and streams.
- Carefully monitor emergency broadcasts for additional instructions

4. Barricade Operations

The decision to conduct barricade operations may be made as a preventive or response measure during an Advisory/Warning. Barricade procedures are listed in the **Flood Barricade Strike Team Guide**.

5. Sandbagging

The Water Services Department has access to FIRM that show critical infrastructure located in various flood zones. The **Levee Committee Operations Guideline** establishes critical sandbag locations for the levees covered in the plan up to a 500 year level event. Sandbags are available thru commercial providers, the USACE, and stockpiled locally. In a major incident all departments' personnel, volunteer cadres, and mutual aid partners may be requested to assist in sandbagging operations. Specific information on sandbagging is located in **Appendix II of the Levee Committee Operations Guidelines**.

6. Rescue Operations

The KCFD is the primary department responsible for rescue operations of individual(s) trapped in flood waters and operates in accordance with their department procedures as outlined in **Annex F – Fire, Rescue and Hazmat Plan**. The KCPD may also conduct rescue operations depending on the size of the incident in accordance with their procedures.

7. Traffic Movement and Control

The KCPD will close roads, bridges and sidewalks as necessary based on field observations to prevent pedestrians and vehicles from entering flash flooding areas.

8. Security and Re-entry

The field IC will request the KCPD to provide perimeter security. The KCPD will allow pedestrian and vehicular traffic to re-enter the area once the incident is terminated, and in a manner that promotes the orderly movement of traffic.

9. Incident Termination

   The EMD (or designee) or UMT (if activated) will determine when flood operations may be terminated based on the advice of WSD, NWS and/or other technical experts.

B. Imminent Flood or Flood Conditions Occurring (Flood or Flash Flood Warning)

A Flood Warning means flooding conditions are actually occurring or are imminent in the warning area. A Flash Flood warning means flash flooding is actually occurring or is imminent in the warning area.

1. Activation

   a. The EMD (or designee) will coordinate with the Flood Warning System Engineer to determine the extent of flooding, or the likelihood of flooding based on:

      - NWS stage warning for local rivers, as well as upstream locations
      - NWS forecast for the amount, intensity and duration of rainfall
      - Soil saturation levels
      - Time of year
      - Other considerations as appropriate

   b. The EMD (or designee) will initiate a conference call among City department heads (or their designee) to coordinate preparedness activities.

   c. The EMD (or designee) will activate provisions of the **Flood Barricade Task Force Guide**.

   d. The EMD (or designee) will activate the EOC at the appropriate Level (Level I, II or III) and commence coordination of emergency operations.

   e. The EMD (or designee) (or other authorized official who activated the EOC) will activate the UMT.

   f. The EMD (or designee) will initiate an incident in WebEOC and will notify neighboring jurisdictions (and the State Operations Center) that emergency operations are underway in the city.

   g. The EMD (or designee) will initiate cost tracking (to support a disaster claim should it be necessary).

2. Scope (Size and Duration)

   The EMD (or designee) or UMT (if activated) will determine the scope of flood operations based on the nature of the threat.

3. Public Warning and Information

   a. City Communications in conjunction with departmental PIOs will determine the most expedient means to warn the public will be used (see **Annex C – Public Information and Warning**).

   b. Emergency public information will, at a minimum, include the following core Information:

      - The reason for warning.
      - The geographic area(s) affected.

- Length of the warning.
- Street and bridge closure information, if necessary.
- Evacuation information, if necessary.
- Specific citizen measures:
  - Call 3-1-1 to report flooding.
  - Clear street drains and gutters if you can do so safely.
  - Never drive through flood waters. If a street is flooded, turn around.
  - Stay away from flooded rivers, creeks and streams.
  - Carefully monitor emergency broadcasts for additional instructions

4. Barricade Operations

   The decision to conduct barricade operations may be made as a preventive or response measure during an Advisory/Warning. Barricade procedures are provided in the **Flood Barricade Strike Team Guide**.

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8. Incident Termination

   The EMD (or designee) or UMT (if activated) will determine when flood operations may be terminated based on the advice of WSD, NWS and/or other technical experts.

C. Damage Assessment and Recovery Operations

   The EMD (or designee) will determine whether damage assessment and recovery operations are necessary, and will implement those procedures in accordance with **Annex D – Damage Assessment.**

Other sections of the LEOP that may pertain to flood operations include **Annex I – Infrastructure** and **Annex J – Evacuation and Transportation.**